

comparison with *suffusella* this species is smaller, and appears to me to be less brilliantly white, but the chief point of distinction lies in the presence of a *fourth* costal streak. If a good series of each species could be compared no doubt other points of difference would be discovered.

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### Some Pyralids from Southern Palestine.

By P. P. GRAVES, F.E.S.

In one of several articles concerning collecting in various places during the Great War which appeared in the *Entomologist's Record* in 1919, I referred to some captures of "Micros" which had not then been determined (*Ent. Record*, 1919, p. 156). Most of the specimens of the *Pyralidae*, which I took, are now in the National Collection at South Kensington and have been determined by Mr. W. H. T. Tams and myself. Of the 28 species taken at Der-el-Belah and Umm-el-Kilab, almost all between the first week of September and the end of November 1917, quite a large proportion are not given in the Staudinger-Rebel Catalogue as inhabiting Syria or its southern extension Palestine. I therefore give a list of my captures, some of which are species which have hitherto only been taken in Palaeartic North Africa (Algeria, Tunis, Egypt, etc.).

Before giving the list, however, I feel that I should write a brief description of the terrain in which these insects were found. The ground was dry burnt-up steppe, a few bushes of a species of *Zizyphus* being the only shrubs of any size. About a mile N.N.W. from my collecting ground was the oasis of Khan Yunus, where there was a certain amount of fruit and garden cultivation. Almost on the Egyptian border near Rafa and about 2 miles S.E. of Umm-el-Kilab where I collected was a ruined garden where figs, pomegranates and tomatoes had been cultivated. The figs survived. Der-el-Belah was a small edition of Khan Yunus, a patch of oasis surrounded by sandy steppe. Near the sea, where I had no opportunity of collecting, were dunes covered with a flinty grass. Speaking generally the country though very bare was steppe, not true desert, being covered with a thin carpet of parched grass and low plants. True desert, *i.e.*, country where vegetation was only occasional and there was no carpet of grass, began just across the Egyptian frontier at Rafa, some  $2\frac{1}{2}$  miles due S. of the camp where I was during most of the autumn of 1917, before the advance into Palestine. Owing to my work in connection with the Turkish order of battle, I could seldom spare any time to leave camp and collect. Most of my captures were made at night when moths came sometimes quite frequently to light in the mess tents. The day temperature was usually high, the nights cool, but not cold until about November 18th, when the rainy season set in and moths practically ceased to appear.

In the following list it will be noted that certain groups of the Pyralides, *e.g.*, the Crambids, were very scantily represented.

I have followed the order of the Staudinger-Rebel Catalogue of 1901, and give the reference number of those species mentioned in Part II. thereof in the list. All were taken at Umm-el-Kilab unless

otherwise mentioned. Months are given in Roman numerals, days in Arabic numerals. All captures were made in 1917. Species not mentioned as occurring in Syria-Palestine in the Catalogue are marked with an asterisk.

- \*1. *Surattha endoleuca*, Hmps. (Not in Catalogue). At Umm-el-Kilab and Der-el-Belah 5-18.X. Also taken by Major Austin at D.-el-Belah.
- \*2. *Ancylolomia paraetoniella*, Trti. (Not in Catalogue) cf. *Att. Soc. It.*, 1924. A specimen taken 18.X, which I took to be *A. palpella* and wrongly recorded as such (*Ent. Rec.* 1919, p. 156) agrees exactly with Count Turati's figure of his new species in his list of Cyrenaic Lepidoptera (loc. cit., Pl. V. fig. 12.)
3. *Raphimetopus (Anerastia) ablutella*, Z. (203) IX. Frequent, also at Der-el-Belah.
4. *Ephestia ficulella*, Gregs. (258) A damaged specimen 21.X, almost certainly of this species probably came from the fig-gardens at Khan Yunus.
5. *Syria pilosella*, Z. (314) Everywhere abundant at light from mid-IX to mid-XI.
- \*6. *Syria niveicosta*, Hmps. (Not in Catalogue). Three specimens of this North African species were taken between 19.IX. and 18.X.
- \*7. *Hypogryphia uncinatella*, Rag. (325). Another North African species of which two very recognisable specimens were taken 14, 15.IX.
8. *Heterographis hellenica*, Stgr. (341). One 14.IX.
- \*9. *H. harmoniella*, Rag. (361). One 10.XI. slightly worn but quite recognisable. This is an Algerian species.
10. *H. samaritanella*, Z. (362). Frequent and variable, X. XI.
- \*11. *H. ephedrella*, H-S. (369). 21.X. One only.
- \*12. *Heterographis mabilrella*, Lucas. (Not in Catalogue). Yet another North African, of which I took a specimen on 14.IX.
13. *H. convexella*, Led. (377). One in good order 8.XI.
- \*14. *Alispa angustella*, Hb. (393). One taken 17.IX. This species occurs in Central Europe and Dalmatia, but does not seem to have been taken in Syria-Palestine before.
15. *Psorosa dahliaella*, Tr. (402) 12.XI-
- \*16. *P. nucleolella*, Moeschl. (403) 14.IX. My one specimen is certainly not *dahliaella*, having a perfectly recognisable and clear cut white submarginal line on the fore-wings. Mr. Tams believes it to be this species, which has been recorded from Asia Minor but not apparently from Syria.
17. *Euzophera osseatella*, Tr. (449) 1.XI.
18. *Ilithyia* sp. ? 3 specimens of an *Ilithyia* taken 14.21.IX. would pass for *I. (Salebria) morosalis*, a wide spread tropical species (*Cat.* II.628) which one might expect in Palestine, were it not for the fact that the subterminal greyish line reaches the anal margin of the forewing almost at the tornus instead of well basad from the tornus. More material is required before this insect can be determined.
- \*19. *I. iversalis*, Swinh. (Not in Catalogue). One specimen 1.XI. A Palaearctic desert and tropical species.

20. *I. dirisella*, Dup. (667). Abundant, IX-XI.  
 21. *Ortholepis brephiella*, Stgr. (613). Occasionally and also at Der-el-Belah 11.IX. to 1.XI.  
 \*22. *O. zohvella*, Obthr. (792). This Algerian species was very frequent from IX. to XI.  
 23. *Hellula undalis*, F. (1003). One very fresh ♂, 14.IX.  
 24. *Nomophila noctuella*, Schiff. (1039). Frequent, IX.  
 25. *Antigastra catalanalis*, Dup. (1072) 5.X. One only.  
 26. *Cynaeda dentalis*, S-D. (1089). Frequent at Der-el-Belah VIII. and also at Umm-el-Kilab.  
 27. *Cornifrons ulceratalis*, Led. (1274). Frequent, XI.  
 28. *Noctuella floralis*, Hb. (1291). Der-el-Belah, VIII.

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**Remarks on the evolution of the Zygaenae and an attempt to analyse and classify the variations of *Z. loniceræ*, Scheven, and of *Z. trifolii*, Esp., and other subspecies.**

By ROGER VERITY, M.D.

This wonderfully complex group of *Zygaenæ* is of the greatest interest. One feels that the various problems in connection with it lie at the root of the mysteries of evolution and the origin of species, and that by solving them in a satisfactory way one might add a useful contribution to one's knowledge of the latter. That is why I have devoted particular attention to these *Zygaenæ* and I have endeavoured to study them more minutely and exhaustively than it had hitherto been done. Some may have the impression that I have pushed analysis too far, but those who have the possibility of following me with adequate materials before their eyes will, I think, soon see that I have only been led to it by facts, and that it is necessary to set down things as they stand, complex as they may be, to attain a positive and true result. It is no use trying to simplify them and make them fit simple schematic views, or one reaches utterly incorrect results. Thus, to begin by the broadest question in connection with this species, that of the degree of distinctness between *loniceræ* and *trifolii* we find that all authors have persisted in keeping them separate from each other as two distinct species, but that all those who have gone into the subject thoroughly and expressed their impressions and views clearly, such as Barrett, Tutt and Oberthür, have had to conclude that it is impossible to draw the line between them. Also the male genital appendages are perfectly identical. This curious contradiction is instructive, because it shows how the usual simple and categorical conception of specific distinctness or non-specific distinctness will not apply to this case: on the one hand *loniceræ* and *trifolii* cannot be separated completely into two species, and on the other they do not constitute together a sufficiently uniform and compact group to be considered a single species. It seems to me that this difficulty has arisen, not so much from facts as from the defects of our mind, which is too absolute in its attempts to conceive them and classify them. If we remember the general law that "*natura non facit saltus*," and we admit that between simple racial differences and complete specific distinctness there is a series of intermediate grades, such cases as that of the *Zygaenæ* in question fall in, very naturally, amongst the latter, and a most inter-